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ABSTRACT

These item specifications were developed as a part of the Arkansas "Minimum Performance Testing Program" (MPT). There is one item specification for each instructional objective included in the MPT. The purpose of an item specification is to provide an overview of the general content and format of test items used to measure an instructional objective. Specifically, each item contains: (1) an objective identification number; (2) grade level; (3) subject area; (4) goal identification; (5) skill description; (6) stimulus attributes; (7) response attributes; and (8) sample items. It is suggested that teachers may use these specifications in a variety of ways. Teachers may use them as a guide in the development of evaluation instruments to check student performance, inform parents about what their child will face on the MPT, and familiarize their students with the MPT. Covered in this guide are items which test whole number numeration, whole number operations, rational numbers, measurement, and geometry. (CW)

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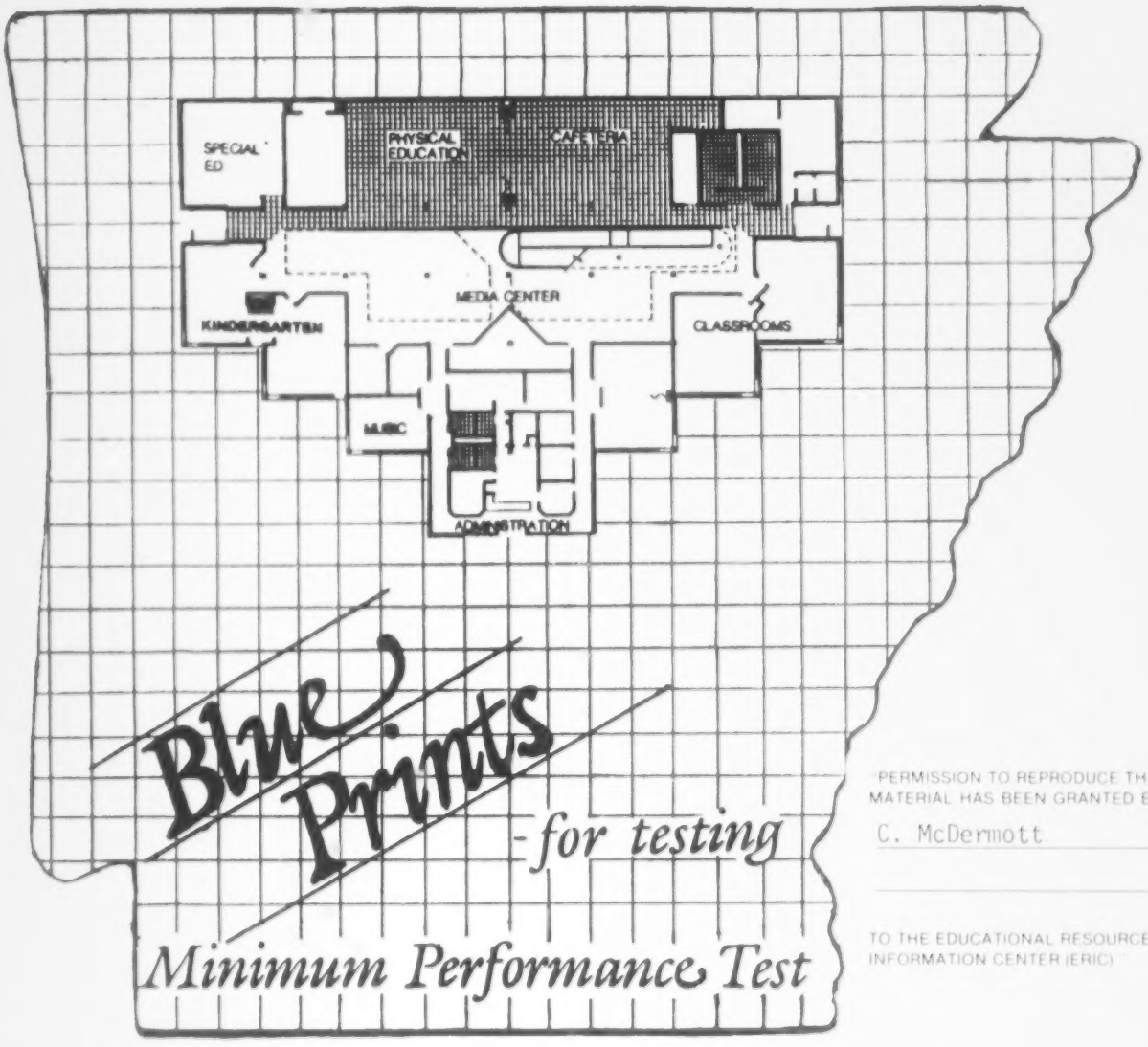

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Item Specifications

Mathematics
Grade 6

INTRODUCTION

These Item Specifications were developed by the Department of Education as part of the Arkansas Minimum Performance Testing Program (MPT). There is one Item Specification for each instructional objective included in the MPT. While all objectives are not necessarily tested every year, every objective included here may appear in the MPT.

The purpose of an Item Specification is to provide an overview of the general content and format of test items used to measure an instructional objective. Specifically, each Item Specification contains the following information:

* *Objective Identification Number*
* *Grade Level*
* *Subject Area*
* *Goal Identification*
* *Skill Description*
* *Stimulus Attributes (Format, Content, Directions)*
* *Response Attributes (Format, Content, Directions)*
* *Sample Item(s)*

The first five elements listed above are consistently labeled and defined to correspond with the Teachers' Guide and MPT materials. The Stimulus Attributes section contains information about the item stem (the question of incomplete statement that makes up the test question). Similarly, the Response Attributes section contains information about the correct answer and about possible incorrect answers. The Sample Item section provides examples of a test item or items which are similar to the items which may appear on the MPT.

These Item Specifications may be used in a variety of ways. Teachers may use them to guide them in the development of information evaluation instruments to determine whether or not students have mastered specific objectives. Teachers may also use these Item Specifications to inform parents about what their children will experience when they take the MPT. Teachers may also use these Item Specifications to familiarize students with what to expect on the MPT.

School administrators may used these Item Specifications when they communicate to the public about the MPT. The sample items may be useful in illustrating what mastery of an objective means.

It is important to understand that use of these Item Specifications does not in any way invalidate the MPT. None of the test items on these Item Specifications have appeared or will ever appear on the MPT. Using these Item Specifications in the classroom or as part of the instructional process is **NOT** teaching the test!

OBJECTIVE: 1.1

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER NUMERATION**

SKILL: Identify the place value of each digit in a six-digit number.

STIMULUS ATTRIBUTES:

A. Format a direct question such as:

Type 1 In ( ), which digit is in the (ones, tens, etc.) place?

Type 2 Which number has a ( ) in the (ones, tens, etc.) place?

Type 3 Which place value does the ( ) represent in the number ( )?

B. Content

Type 1 any number with six different digits excluding zero in the hundred thousands place

Type 2 any one-digit number

Type 3 any number with six different digits excluding zero in the hundred thousands place

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 four digits listed vertically in order of increasing or decreasing magnitude

Type 2 four six-digit numbers listed vertically in increasing or decreasing magnitude

Type 3 four numbers representing values of the stimulus digit placed in value position and listed vertically in order of increasing magnitude

B. Options

Type 1
correct response: the digit requested in the stimulus
distractors: other digits from the stimulus number

Type 2
correct response: the number requested in the stimulus
distractors:
1. other arrangements of the digits in the correct response
2. other six-digit numbers using the stimulus digit in other place values

Type 3
correct response: the number representing the value requested in the stimulus
distractors: products of the stimulus digit and different powers of ten

OBJECTIVE: 1.1 (cont.)

SAMPLE ITEM: *Type 1*

1. **In 635,241, which digit is in the <u>hundreds</u> place?**

   A 1
   ***B** 2
   C 5
   D 6

SAMPLE ITEM: *Type 2*

2. **Which number has a 7 in the <u>hundreds</u> place?**

   *** A** 198,725
   B 257,346
   C 568,947
   D 712,398

SAMPLE ITEM: *Type 3*

3. **Which value does the 5 represent in the number <u>635,241</u>?**

   A 5
   B 500
   ***C** 5,000
   D 50,000

OBJECTIVE: 1.2

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER NUMERATION**

SKILL: Identify the relationship between two six-digit numbers (greater than >, less than <, equal to =).

STIMULUS ATTRIBUTES:

A. Format

Type 1	a direct question such as: Which is true?
Type 2	two six-digit numbers separated by a box preceded by a direct question such as: Which symbol belongs in the box?

B. Content

Type 1	N/A
Type 2	six-digit positive numbers

C. Directions

Types 1 and 2	N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1	four inequalities or equations listed vertically in random order
Type 2	three symbols of inequalities or equations listed vertically

B. Content

Type 1	six-digit positive numbers
Types 1 and 2	signs limited to =, >, <

C. Options

Type 1	correct response: the true relationship between two numbers distractors: false statements of equality or inequality
Type 2	correct response: the sign that makes the stimulus true distractors: other signs of equality or inequality

---

SAMPLE ITEM: *Type 1*

1. Which is true?

- •**A** 635,482 < 654,492
- **B** 635,482 > 653,492
- **C** 543,309 = 543,039
- **D** 543,309 < 543,039

SAMPLE ITEM: *Type 2*

2. Which symbol belongs in the box?

635,482 ☐ **653,492**

- **A** =
- **B** >
- •**C** <

OBJECTIVE: 1.3

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER NUMERATION**

SKILL: Round numbers to the nearest 1,000.

STIMULUS ATTRIBUTES:

A. Format	a four- to six-digit number, including commas, preceded by a statement such as: round ( ) to the nearest thousand
B. Content	deciding digit greater than or less than 5
C. Directions	N/A

RESPONSE ATTRIBUTES:

A. Format	four four- to six-digit numbers, including commas, listed vertically in order of increasing or decreasing magnitude
B. Options	correct response: the stimulus number rounded to the nearest thousand distractors: 1. the correct response increased or decreased by one thousand or ten thousand 2. the stimulus number 3. any other number

---

SAMPLE ITEMS:

1. **Round 49,743 to the nearest thousand.**

   A 40,000
   B 49,000
   C 49,473
   ***D** 50,000

2. **Round 5,641 to the nearest thousand.**

   A 5,000
   B 5,500
   ***C** 6,000
   D 6,541

3. **Round 475,361 to the nearest thousand.**

   A 474,000
   ***B** 475,000
   C 476,000
   D 476,461

OBJECTIVE: 1.4

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER NUMERATION**

SKILL: Recognize the word name for the standard numeral through hundred-thousands.

STIMULUS ATTRIBUTES:

A. Format	a statement such as: Choose the word name for the number ( ).
B. Content	a five- or six-digit number including a comma
C. Directions	N/A

RESPONSE ATTRIBUTES:

A. Format	four word names for numerals listed vertically in random order
B. Options	correct response: the word name for the stimulus numeral distractors: 1. other word names using the digits from the stimulus numeral 2. individual digit names without place value (one, two, etc.)

SAMPLE ITEM:

1. **Choose the word name for the number 539,642.**

   A five three nine, six four two
   *B five hundred thirty-nine thousand, six hundred forty-two
   C five hundred ninety-three, six forty-two
   D five thousand thirty-nine, six forty-two

OBJECTIVE: 1.5

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER NUMERATION**

SKILL: Recognize the standard numeral for the word name through hundred-thousands.

STIMULUS ATTRIBUTES:

A.	**Format**	a boxed word name for a numeral preceded by a statement such as: Choose the number for this word name.
B.	**Content**	a word name for a five- or six-digit number
C.	**Directions**	N/A

RESPONSE ATTRIBUTES:

A.	**Format**	four standard numerals, including commas, listed vertically in random order
B.	**Options**	correct response: the numeral matching the word name in the stimulus distractors: digits from the correct response in different place values

---

SAMPLE ITEM:

1. **Choose the number for this word name.**

four hundred three thousand, six hundred seventeen

A 430,617
B 403,670
•**C** 403,617
D 430,670

OBJECTIVE: 2.1

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER OPERATIONS**

SKILL: Add three or more five-digit numbers with regrouping.

STIMULUS ATTRIBUTES:

A. Format an addition problem arranged vertically or horizontally (X + Y + Z =) with an operational symbol

B. Content three or more five-digit numbers including commas

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four numbers, including commas, listed vertically in order of increasing or decreasing magnitude

B. Content three or more five-digit numbers

C. Options correct response: the sum of the stimulus problem
distractors:
1. sum without regrouping
2. one more or less than the correct response
3. ten more or less than the correct response
4. one hundred more or less than the correct response
5. one thousand more or less than the correct response

SAMPLE ITEMS:

1.
$$\begin{array}{r} 42{,}731 \\ 23{,}456 \\ +\ 12{,}345 \\ \hline \end{array}$$

A 77,422
B 78,432
C 78,531
* D 78,532

2. 24,321 + 15,412 + 30,899 =

A 69,522
B 69,632
* C 70,632
D 70,642

OBJECTIVE: 2.2

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER OPERATIONS**

SKILL: Subtract any five-digit number with regrouping.

STIMULUS ATTRIBUTES:

A. Format	a subtraction problem arranged vertically or horizontally (X - Y =) with an operational symbol
B. Content	two five-digit numbers, including commas, which require regrouping
C. Directions	N/A

RESPONSE ATTRIBUTES:

A. Format	four numbers, including commas, listed vertically in order of increasing or decreasing magnitude
B. Options	correct response: the difference between the stimulus numbers distractors: 1. sum of the stimulus numbers 2. incorrect regrouping

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SAMPLE ITEMS:

1.
```
  82,003
- 61,476
--------
```
A 20,427
*B 20,527
C 21,527
D 143,479

2. 15,572 - 12,755 =

*A 2,817
B 2,827
C 3,817
D 27,227

OBJECTIVE: 2.3

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER OPERATIONS**

SKILL: Multiply a three-digit number by a two-digit number.

STIMULUS ATTRIBUTES:		RESPONSE ATTRIBUTES:	
A. Format	a multiplication problem arranged vertically or horizontally (X x Y =) with an operational symbol	A. Format	four numbers, including commas, listed vertically in order of increasing or decreasing magnitude
B. Content	one three-digit number and one two-digit number	B. Options	correct response: the product of the stimulus problem distractors: 1. misaligning the partial products 2. error due to regrouping in the partial product 3. using zero times a number equals that number 4. multiplying by only one digit of a two-digit number 5. addition error
C. Directions	N/A		

SAMPLE ITEMS:

1.
$$\begin{array}{r} 456 \\ \times\ 21 \\ \hline \end{array}$$

A 456
B 1,368
C 9,476
* D 9,576

2. 251 x 24 =

A 1,307
B 1,507
C 5,024
* D 6,024

OBJECTIVE 2.4

GRADE 6: MATHEMATICS **GOAL: WHOLE NUMBER OPERATIONS**

SKILL: Divide a three-digit number by any two-digit number (with or without remainder).

STIMULUS ATTRIBUTES:

A. Format a division problem with an operational symbol

B. Content a three-digit dividend and a two-digit divisor

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four whole numbers listed vertically in random order

B. Content
1. numbers with or without remainders
2. numbers aligned in correct place value

C. Options
correct response: the quotient of the stimulus problem
distractors:
1. ignoring a zero in the dividend
2. a partial quotient
3. incorrect subtraction or multiplication

SAMPLE ITEM: *Type 1*

1. $21\overline{)362}$

•**A** 17 R5
B 26
C 1 R5
D 17

SAMPLE ITEM: *Type 2*

2. 208 ÷ 13 =

A 8
B 10 R3
• **C** 16
D 9 R5

OBJECTIVE: 3.1

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Determine if a fraction is the simplest form and, if not, simplify it.

STIMULUS ATTRIBUTES:

A. Format a proper fraction preceded by a direct question or statement such as: Choose the SIMPLEST FORM of ( ).

B. Content denominator and numerator with a value of 50 or less

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four fractions listed vertically in random order

B. Options

correct response: the simplest form of the stimulus fraction

distractors:

1. the stimulus fraction (unless the correct response)
2. the stimulus fraction partially simplifed
3. other proper fractions

SAMPLE ITEM:

1. **Choose the SIMPLEST FORM of** $\frac{35}{49}$.

   * A $\frac{5}{7}$

   B $\frac{5}{15}$

   C $\frac{35}{49}$

   D $\frac{25}{39}$

OBJECTIVE: 3.2

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Find the least common denominator of two fractions with denominators less than ten.

STIMULUS ATTRIBUTE:

A.	**Format**	two fractions preceded by a statement or direct question such as: Choose the least common denominator of ( ) and ( ).
B.	**Content**	fractions with denominators less than 10
C.	**Directions**	N/A

RESPONSE ATTRIBUTE:

A.	**Format**	four numbers listed vertically in order of increasing or decreasing magnitude
B.	**Content**	numbers placed in place value position
C.	**Options**	correct response: the least common denominator of the stimulus fractions distractors: 1. sum of the stimulus denominators 2. one of the stimulus denominators (unless the correct response) 3. product of the stimulus denominators (unless the correct response) 4. any other number

SAMPLE ITEM:

1. **Which is the least common denominator of $\frac{11}{3}$ and $\frac{11}{9}$?**

   • **A** 9
   B 12
   C 18
   D 27

OBJECTIVE: 3.3

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Add fractions having common denominators.

STIMULUS ATTRIBUTES:

A. Format two or three fractions written vertically or horizontally (X + Z =) with an operational symbol

B. Content
1. one- or two-digit numerators and denominators
2. fractions with common denominators in simplest form

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four fractions listed vertically in random order

B. Options

correct response: sum of the stimulus problem expressed in simplest form

distractors:
1. fraction representing the sum of the numerators and denominators
2. fraction representing the product of the numerators and denominators
3. any other proper fraction

SAMPLE ITEMS:

1. $\frac{7}{24}$
   $\frac{5}{24}$
   $+ \frac{11}{24}$

   A $\frac{47}{24}$
   B $\frac{23}{73}$
   C $\frac{47}{27}$
   * D $\frac{23}{24}$

2. $\frac{1}{9} + \frac{4}{9} =$

   A $\frac{5}{18}$
   * B $\frac{5}{9}$
   C $\frac{23}{9}$
   D $\frac{4}{81}$

OBJECTIVE: 3.4

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Subtract fractions having common denominators.

STIMULUS ATTRIBUTES:

A. Format two fractions written vertically or horizontally (X - Z =) with an operational symbol

B. Content
1. one- or two-digit numerator and denominator
2. fractions with common denominators in simplest form

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four fractions listed vertically in random order

B. Options

correct response: the difference of the stimulus problem expressed in simplest form

distractors:
1. fraction representing the sum of the numerator and denominator
2. fraction representing the difference between the numerator and denominator
3. sum of the numerators over the common denominator
4. other proper fractions

SAMPLE ITEMS:

1. $\frac{8}{9}$
$- \frac{1}{9}$

* A $\frac{7}{9}$

B $\frac{7}{10}$

C $\frac{9}{9}$

D $\frac{9}{18}$

2. $\frac{12}{13} - \frac{7}{13} =$

A $\frac{19}{26}$

* B $\frac{5}{13}$

C $\frac{5}{0}$

D $\frac{5}{26}$

OBJECTIVE: 3.5

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Change a mixed number to an improper fraction.

STIMULUS ATTRIBUTES:		RESPONSE ATTRIBUTES:	
A. Format	a direct question such as: What is the IMPROPER fraction of ( )?	A. Format	four improper fractions listed vertically in random order
B. Content	1. a one-digit numerator and denominator in the fractional part of the stimulus 2. whole number 10 or less	B. Options	correct response: the improper fraction of the stimulus mixed number distractors: 1. multiplying but not adding the numerator 2. multiplying the numerator and denominator and adding the whole number 3. any improper fraction

---

SAMPLE ITEM:

1. **What is the IMPROPER fraction of $3\ \frac{1}{5}$?**

   A $\frac{15}{5}$

   B $\frac{8}{5}$

   *C $\frac{16}{5}$

   D $\frac{10}{5}$

OBJECTIVE: 3.6

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Change an improper fraction to a mixed number.

STIMULUS ATTRIBUTES:

A. Format a direct question such as: What is the mixed number for ( )?

B. Content
1. one-digit denominator
2. one- or two-digit numerator which is not a multiple of the denominator

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four mixed numbers listed vertically in random order

B. Content
1. whole number less than 10
2. fractional part in simplest form

C. Options

correct response: the mixed number of the stimulus fraction in simplest form

distractors:
1. correct response with the whole number and the numerator interchanged
2. correct response with the numerator changed by plus or minus one
3. any other mixed number

SAMPLE ITEM:

1. **What is the mixed number for $\frac{17}{5}$?**

   A $2\frac{3}{5}$

   B $3\frac{1}{5}$

   C $2\frac{2}{5}$

   *D $3\frac{2}{5}$

OBJECTIVE: 3.7

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Identify the place value of each digit in a decimal to thousandths.

STIMULUS ATTRIBUTES:

A. Format a direct question such as:

Type 1 Which number has a ( ) in the ( ) (TENTHS, etc.) place?

Type 2 In ( ), which number is in the ( ) (TENTHS, etc.) place?

B. Content

Type 1 N/A

Type 2
1. decimal less than one
2. digits not repeated

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 four decimals, with decimal points aligned, listed vertically in random order

Type 2 four digits listed vertically in random order

B. Content

Type 1
1. decimals less than one
2. digits not repeated

Type 2 N/A

C. Options

Type 1

correct response: the decimal with the stimulus digit in the requested place

distractors:
1. other arrangements of the digits in the correct response
2. other incorrect decimals

Type 2

correct response: the digit requested in the stimulus question

distractors:
1. other digits from the stimulus decimal
2. any other one-digit number

SAMPLE ITEMS:

1. Which number has a 7 in the TENTHS place?

A .471
B .147
• C .714
D .172

2. In .471, which number is in the HUNDREDTHS place?

• A 7
B 4
C 1
D 6

OBJECTIVE: 3.8

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Add decimals through thousandths.

STIMULUS ATTRIBUTES:

A. Format two or three decimals, with or without whole numbers, arranged vertically or horizontally (X + Y =) with an operational symbol

B. Content
1. whole number component less than or equal to ten
2. one of the decimals to be tenths or hundredths

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four decimals, with decimal points aligned, listed vertically in order of increasing or decreasing magnitude

B. Content decimals through thousandths

C. Options correct response: the sum of the stimulus problem
distractors:
1. a response showing failure to regroup
2. any other decimal fraction

SAMPLE ITEMS:

1.
$$\begin{array}{r} 9.75 \\ 5.213 \\ +\ 0.234 \\ \hline \end{array}$$

A 14.197
*B 15.197
C 15.287
D 151.97

2. 9.75 + 5.213 =

A 6.188
*B 14.963
C 16.275
D 149.630

OBJECTIVE: 3.9

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Subtract decimals through thousandths.

STIMULUS ATTRIBUTES:

A. Format two decimals, with or without whole numbers, arranged vertically or horizontally (X - Y =) with an operational symbol

B. Content
1. whole number component less than or equal to 10
2. each place value in the decimal represented by digits 0-9

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four decimals, with decimal points aligned, listed vertically in order of increasing or decreasing magnitude

B. Content decimals with the same number of places as the decimal in the stimulus

C. Directions correct response: the difference between the stimulus decimals
distractors:
1. a response showing failure to regroup
2. the correct response with the decimal incorrectly placed
3. any incorrect decimal

SAMPLE ITEMS:

1.
```
  10.590
- 9.657
```

*A .933
B 9.133
C 11.147
D 89.330

2. .559 - .476 =

*A .083
B .123
C .800
D 1.035

OBJECTIVE: 3.10

GRADE 6: MATHEMATICS **GOAL: RATIONAL NUMBERS**

SKILL: Multiply decimals through thousandths by a one-digit whole number.

STIMULUS ATTRIBUTES:

A. Format a decimal multiplied by a one-digit whole number arranged vertically or horizontally (X x Y =) with an operational symbol

B. Content a one- to three-digit decimal and a one-digit whole number

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four decimals, with decimal points aligned, listed vertically in order of increasing or decreasing magnitude

B. Options correct response: the product of the stimulus problem
distractors:
1. the correct response with the decimal in incorrect positions
2. any incorrect decimal

SAMPLE ITEMS:

1.
$$\begin{array}{r} .354 \\ \times \quad 2 \\ \hline \end{array}$$

A .576
•B .708
C 6.108
D 7.080

2. .54 x 5 =

A .27
•B 2.7
C 7.2
D 27.0

OBJECTIVE: 4.1

GRADE 6: MATHEMATICS **GOAL: MEASUREMENT**

SKILL: Measure a line segment using the customary unit to the nearest one-fourth inch.

STIMULUS ATTRIBUTES:

A. Format a ruler and a line segment to be measured preceded by a direct question such as: What is the length of the line segment to the NEAREST QUARTER INCH?

B. Content
1. ruler calibrated in quarter inches with inches labeled
2. line segment placed above the ruler

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four measurements listed vertically in order of increasing or decreasing magnitude

B. Content measurements labeled inch or inches (no abbreviations)

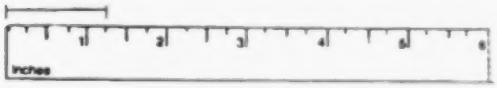
C. Options

correct response: the measurement of the line segment in the stimulus

distractors:
1. one-fourth inch more or less than the correct measurement
2. other measurements within the length of the ruler

SAMPLE ITEM:

1. **What is the length of the line segment to the NEAREST QUARTER INCH?**



A 2 inches

B $1\frac{1}{2}$ inches

*C $1\frac{1}{4}$ inches

D $\frac{3}{4}$ inch

OBJECTIVE: 4.2

GRADE 6: MATHEMATICS **GOAL: MEASUREMENT**

SKILL: Measure a line segment in metric unit to the nearest centimeter.

STIMULUS ATTRIBUTES:

A. Format a ruler and a line segment preceded by a direct question such as: What is the length of the line segment to the NEAREST CENTIMETER?

B. Content
1. ruler calibrated in millimeters and labeled in centimeters
2. line segment placed above the ruler

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four measurements listed vertically in order of increasing or decreasing magnitude

B. Content measurements labeled in centimeters (no abbreviations)

C. Options correct response: the measurement of the line segment in the stimulus
distractors:
1. one centimeter more or less than the correct response
2. other measurements within the length of the ruler

SAMPLE ITEM:

1. **What is the length of the line segment to the NEAREST CENTIMETER?**

* **A** 4 centimeters
B 5 centimeters
C 6 centimeters
D 7 centimeters

OBJECTIVE: 4.3

GRADE 6: MATHEMATICS **GOAL: MEASUREMENT**

SKILL: Tell time to the nearest minute.

STIMULUS ATTRIBUTES:

A. Format

Type 1 a line drawing of a clock face preceded by a direct question such as: What time does the clock show?

Type 2 a direct question such as: Which clock shows _____?

Type 3 a line drawing of a clock face preceded by a direct question such as: What time does the clock show?

B. Content

Types 1 and 3
1. hours labeled with Arabic numbers
2. minute hand pointing to a marked minute
3. time requested to the nearest minute

Type 2 time requested to the nearest minute

C. Directions

Types 1, 2, and 3 N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 four indicators of time given with a colon (:) notation listed vertically in random order

Type 2 four clock faces indicating time to the nearest minute placed in random order

Type 3 four indicators of time expressed as ( ) minutes before or after ( ) o'clock listed vertically in random order

B. Content

Types 1 and 3 N/A

Type 2
1. hours labeled with Arabic numbers
2. minute hands pointing to marked minutes

C. Options

Types 1 and 3

correct response: the time requested in the stimulus

distractors:
1. reversal of the hour and minute
2. incorrect counting by two or five minutes
3. one hour more or less than the correct response

Type 2

correct response: the clock face showing the time requested in the stimulus question

distractors:
1. clock face showing the reversal of the hour and minute hands
2. clock face showing incorrect counting by two or five minutes
3. clock face showing one hour more or less than the correct response

OBJECTIVE: 4.3 (cont.)

SAMPLE ITEM: ***Type 1***

1. **What time does the clock show?**

A 11:45
B 9:27
C 10:50
*D 8:55

SAMPLE ITEM: ***Type 3***

3. **What time does the clock show?**

*A 5 minutes before 9 o'clock
B 15 minutes before 9 o'clock
C 45 minutes after 11 o'clock
D 55 minutes after 9 o'clock

SAMPLE ITEM: ***Type 2***

2. **Which clock shows 4:40?**

A

B

* C

D

OBJECTIVE: 4.4

GRADE 6: MATHEMATICS **GOAL: MEASUREMENT**

SKILL: Determine the value of a collection of bills and coins to $10.00.

STIMULUS ATTRIBUTES:

A. Format

Type 1 line drawings of coins and one and/or five dollar bills followed by a direct question such as: How much money is shown?

Type 2 a direct question such as: Which shows ( ) ($4.05)?

B. Content

Type 1
1. coins of same value grouped
2. line drawings of money not to exceed $10.00

Type 2 dollar and cents values requested

C. Directions

Types 1 and 2 N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 four amounts of money with dollar sign and decimal point listed vertically in order of increasing or decreasing magnitude

Type 2 four line drawings of coins and one and/or five dollar bills listed vertically in random order

B. Content

Type 1 dollar and cents values

Type 2
1. coins of same value grouped
2. line drawings of money not to exceed $10.00

C. Options

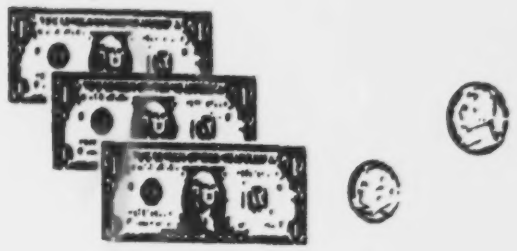
Type 1
<u>correct response</u>: the amount of money requested in the stimulus
<u>distractors</u>:
1. errors in counting bills or coins
2. other amounts of money

Type 2
<u>correct response</u>: the line drawing of coins and bills requested in the stimulus question
<u>distractors</u>: line drawings of other amounts of money

OBJECTIVE: 4.4 (cont.)

SAMPLE ITEM: ***Type 1***

1. How much money is shown?



A $1.30
* B $3.15
C $4.05
D $4.50

SAMPLE ITEM: ***Type 2***

2. Which shows $3.12?

A

B

* C

D

OBJECTIVE: 4.5

GRADE 6: MATHEMATICS **GOAL: MEASUREMENT**

SKILL: Identify the temperature as shown on a Fahrenheit or Celsius thermometer.

STIMULUS ATTRIBUTES:

A. Format

Type 1 a line drawing of a Celsius or Fahrenheit thermometer preceded by a direct question such as: What is the temperature?

Type 2 a direct question such as: Which thermometer below shows ( )?

B. Content

Type 1 wide range of degrees (e.g. 0°- 70° C, 30°- 50° F) calibrated in 5 but labeled every 10° (exact 5 shown)

Type 2 small range of degrees (eg. 0°- 30° C, 10°- 20° F) calibrated in 2 but labeled every 10° (exact 2 shown)

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 four temperatures in Fahrenheit or Celsius listed vertically in order of increasing or decreasing magnitude

Type 2 four thermometers with indicated temperatures placed in random order

B. Options

Type 1 correct response: the temperature indicated in the stimulus thermometer
distractors: temperatures at least 5° above or below the correct response

Type 2 correct response: the thermometer showing the temperature requested in the stimulus
distractors: thermometers showing temperatures at least 2° above or below the correct temperatures

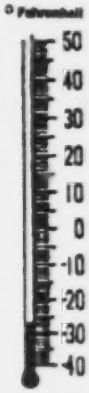
OBJECTIVE: 4.5 (cont.)

SAMPLE ITEM: Type 1

1. What is the temperature?

* A -10° C
B 10° C
C 0° C
D 5° C

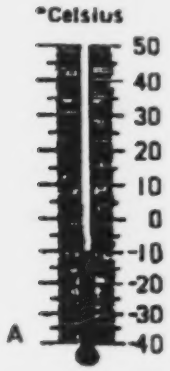
2. What is the temperature?

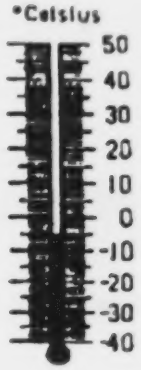


A -20° F
B -25° F
C -27° F
D -30° F

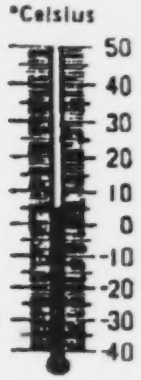
SAMPLE ITEM: Type 2

3. Which thermometer below shows -5° C?

A


* B


C

D


OBJECTIVE: 5.1

GRADE 6: MATHEMATICS **GOAL: GEOMETRY**

SKILL: Identify models of spheres, cones, cylinders, cubes, and pyramids.

STIMULUS ATTRIBUTES:

A. Format

Type 1 a model preceded by a direct question or statement such as: Choose the word that names this picture.

Type 2 a direct question such as: Which figure below is a ( ) (sphere, etc.)?

B. Content

Type 1 model limited to skill list

Type 2 model requested limited to skill list

C. Directions

Types 1 and 2 N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 four words naming geometric figures listed vertically in random order

Type 2 four models of geometric figures placed in random order

B. Options

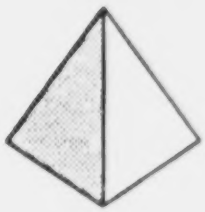
Type 1 correct response: the name of the model in the stimulus
distractors: names of other geometric solids limited to the skill list

Type 2 correct response: the model requested in the stimulus
distractors: other geometric models limited to the skill list

---

SAMPLE ITEM: *Type 1*

1. **Choose the word that names this picture.**



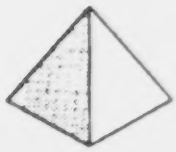
A cube
B cone
***C** pyramid
D cylinder

SAMPLE ITEM: *Type 2*

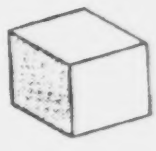
2. **Which figure below is a pyramid?**

A

*** B**



C



D

OBJECTIVE: 5.2

GRADE 6: MATHEMATICS **GOAL: GEOMETRY**

SKILL: Identify: point, line, line segment, parallel lines, perpendicular lines, and intersecting lines.

STIMULUS ATTRIBUTES:

A. Format

Type 1 an illustration of a geometric symbol or figure preceded by a direct question or incomplete sentence such as: What does the figure (symbol) below represent?

Type 2 a direct question such as: Which figure (symbol) below represents a ( )?

B. Content

Type 1 illustration limited to skill list

Type 2 term requested limited to skill list

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format

Type 1 names of four geometric symbols or figures listed vertically from short to long

Type 2 four geometric figures or symbols placed in random order

B. Options

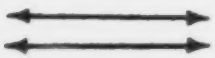
Type 1 correct response: the name of the geometric symbol or figure in the stimulus
distractors: names of other geometric symbols or figures from the skill list

Type 2 correct response: the geometric symbol or figure requested in the stimulus question
distractors: other geometric symbols or figures from the skill list

---

SAMPLE ITEM: *Type 1*

1. **What does the figure below represent?**



A a point
* B parallel lines
C a line segment
D intersecting lines

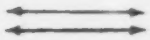
SAMPLE ITEM: *Type 2*

2. **Which symbol below represents a line segment?**

* A

B

C

D 

OBJECTIVE: 5.3

GRADE 6: MATHEMATICS **GOAL: GEOMETRY**

SKILL: Identify congruent figures and corresponding parts.

STIMULUS ATTRIBUTES:

A. Format

Type 1	a geometric figure followed by a direct question such as: Which is congruent to the figure above?
Type 2	two congruent triangles preceded by a direct question such as: Line segment (angle) ( ) of triangle ( ) matches what line segment (angle) of triangle ( )?
Type 3	a direct question such as: Which figure is divided into congruent parts?

B. Content

Type 1	geometric figure limited to a circle, square, triangle, or rectangle
Types 2 and 3	N/A

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format

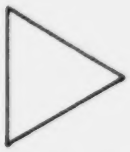
Type 1	four geometric figures placed in random order
Type 2	names of four line segments (angles) listed vertically in random order
Type 3	the same geometric figure listed four times with each figure divided in a different way

B. Options

Type 1	correct response: the geometric figure requested in the stimulus distractors: 1. figure with the same shape as the correct response but a different size 2. other geometric figures
Type 2	correct response: the line segment (angle) requested in the stimulus distractors: line segments (angles) that do not correspond to the stimulus
Type 3	correct response: the figure divided into congruent parts distractors: figures divided so the parts are not congruent

OBJECTIVE: 5.3 (cont.)

SAMPLE ITEM: ***Type 1***



1. Which is congruent to the figure above?

• A

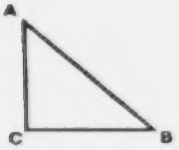
B

C

D

SAMPLE ITEM: ***Type 2***

2. Line segment AB of triangle ABC matches what line segment of triangle XYZ?



A YZ
B XY
• C XZ
D BC

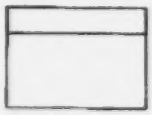
SAMPLE ITEM: ***Type 3***

2. Which figure is divided into congruent parts?

A

B

• C

D 

OBJECTIVE: 5.4

GRADE 6: MATHEMATICS **GOAL: GEOMETRY**

SKILL: Identify center, diameter and radius of a circle.

STIMULUS ATTRIBUTES:

A. Format

Type 1	a line drawing of a circle followed by a direct question or an incomplete statement such as: Line segment (Point) ( ) is a:
Type 2	a direct question such as: In which figure is the line segment ( ) the ( ) (center, diameter, radius) of the circle?
Type 3	a line drawing of a circle followed by a direct question such as: Which line segment is the diameter of the circle?

B. Content

Type 1	line segment or point labeled alphabetically
Type 2	N/A
Type 3	line segments and points labeled alphabetically

C. Directions

Types 1, 2, and 3	N/A

RESPONSE ATTRIBUTES:

A. Format

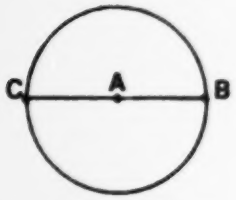
Type 1	four terms referring to circle parts listed vertically in random order
Type 2	four circles with different parts labeled
Type 3	four alphabetical names of line segments or points

B. Options

Type 1	correct response: the name of the circle part requested in the stimulus distractors: names of other circle parts
Type 2	correct response: the circle labeled with the circle part requested in the stimulus distractors: circles with other circle parts labeled
Type 3	correct response: the line segment or point requested in the stimulus distractors: other line segments or points

OBJECTIVE: 5.4 (cont.)

SAMPLE ITEM: ***Type 1***



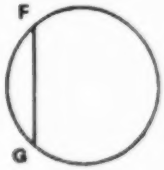
1. **Line segment AB is a:**

   •**A** radius.
   B diameter.
   C perimeter.
   D circumference.

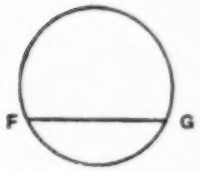
SAMPLE ITEM: ***Type 2***

2. **In which figure is the line segment FG the diameter of the circle?**

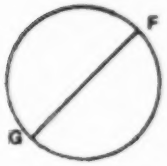
A



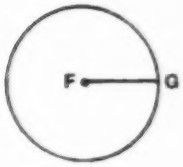
B



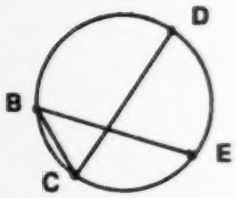
• **C**



D



SAMPLE ITEM: ***Type 3***



3. **Which line segment is the diameter of the circle?**

   A BC
   •**B** CD
   C CE
   D DE

OBJECTIVE: 5.5

GRADE 6: MATHEMATICS **GOAL: GEOMETRY**

SKILL: Identify the quadrilaterals (square, rectangle, parallelogram, trapezoid, and rhombus).

STIMULUS ATTRIBUTES:

A. Format

Type 1 a direct question such as: Which is a ( ) (square, rectangle, etc.)?

Type 2 drawings of four geometric figures followed by a direct question such as: What are the figures below?

B. Content

Type 1 term requested limited to skill list

Type 2 four geometric figures in the same category from the skill list

RESPONSE ATTRIBUTES:

A. Format

Type 1 four geometric figures placed in random order

Type 2 the names of four geometric figures listed vertically from short to long

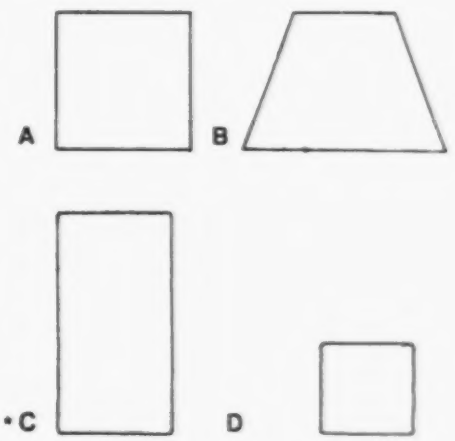
B. Options

Type 1 correct response: the quadrilateral requested in the stimulus question
distractors: other geometric figures

Type 2 correct response: the name of the quadrilateral requested in the stimulus question
distractors: names of other geometric figures

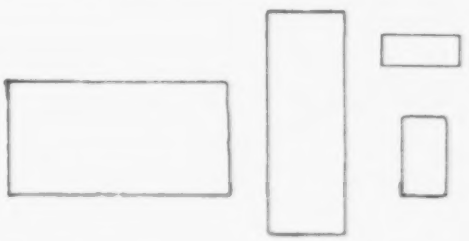
SAMPLE ITEM: *Type 1*

1. Which is a rectangle?



SAMPLE ITEM: *Type 2*

2. What are the figures below?



A circles
B squares
C triangles
•D rectangles

OBJECTIVE: 5.6

GRADE 6: MATHEMATICS GOAL: GEOMETRY

SKILL: Find the perimeter of triangles and quadrilaterals.

STIMULUS ATTRIBUTES:

A. Format a geometric figure preceded by a direct question such as: What is the perimeter of this ( ) (triangle, etc.)?

B. Content
1. quadrilaterals limited to square, rectangle, parallelogram, rhombus, or trapezoid
2. three sides of a triangle labeled
3. two adjacent sides of a rectangle labeled
4. one side of a square labeled
5. four sides of a rhombus or trapezoid labeled

C. Directions N/A

RESPONSE ATTRIBUTES:

A. Format four measurements listed vertically in order of increasing or decreasing magnitude

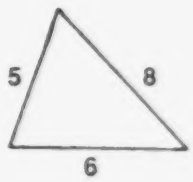
B. Options

correct response: the perimeter requested in the stimulus

distractors:
1. product of two sides
2. sum of two sides
3. additon errors

SAMPLE ITEM:

1. What is the perimeter of this triangle?



A 12
•B 19
C 20
D 35

END

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Date Filmed

March 29, 1991